IN THE CLAIMS:

1. (Currently Amended) A method of determining an optimal fan penetration for a fan drive system used to cool an engine of a vehicle, the fan drive system having a plurality of fan blades and a closely coupled radiator, wherein fan penetration is defined as the relative location of the plurality of fan blades between the front portion of the engine and the radiator, the method comprising:

(a) uncoupling the fan drive system from the engine;

(b) removing a fan clutch from the fan drive system;

(c) coupling a fan penetration fixture to the fan drive system;

(d) recoupling the fan drive system to the engine such that the plurality of fan blades is located in a first fan penetration;

(e) measuring a desired cooling system performance characteristic of the fan drive system at said first fan penetration at a desired engine operating temperature and at a desired fan blade rotational rate;

(f) repeating step (e) for at least one additional fan penetration, wherein the location of said plurality of fan blades in said at least one additional fan penetration is not equivalent to the location of said plurality of fan blades in said first fan penetration; and

(h) comparing the measured cooling system performance characteristics of the fan drive system at said first fan penetration to the measured cooling system performance characteristic at said at least one additional fan penetration.

2. (Original) The method of claim 1, wherein (c) coupling a fan penetration fixture to the fan drive system comprises:

providing a fan penetration fixture comprising a threaded shaft portion, a locking sleeve and a flanged shaft portion;

coupling said threaded shaft portion to a front portion of a hub assembly;

coupling an inner threaded portion of said locking sleeve onto a threaded shaft of said threaded shaft portion;

coupling an inner threaded portion of said flanged shaft portion onto said threaded shaft;

coupling a fan assembly to said flanged shaft portion, said fan assembly

having a plurality of fan blades and a hub portion; and

coupling said flanged shaft portion to said locking sleeve such that said plurality of fan blades are located at a first fan penetration.

3. (Original) The method of claim 2, wherein (f) repeating step (e) for at least one additional fan penetration comprises:

uncoupling said flanged shaft portion from said locking sleeve;

rotating said fan assembly in a first direction along said threaded shaft such that said plurality of fan blades are located at a second fan penetration; and

recoupling said flanged shaft portion to said locking sleeve.

4. (Original) The method of claim 3, wherein coupling said threaded shaft portion to said front portion of said hub assembly comprises bolting said threaded shaft portion to said front portion of said hub assembly.

5. (Original) The method of claim 4, wherein bolting said threaded shaft portion to said front portion of said hub assembly comprises bolting said threaded shaft portion to said front portion of said hub assembly using at least one socket head cap bolt.

6. (Original) The method of claim 4, wherein bolting said threaded shaft portion to said front portion of said hub assembly comprises:

inserting at least one socket head cap bolt through a threaded shaft portion bolt hole and into a front portion of said hub assembly; and

tightening said at least one socket head cap head bolt to about 45 foot-pounds of torque.

7. (Original) The method of claim 3, wherein coupling said flanged shaft portion to said locking sleeve comprising bolting said flanged shaft portion to a disc-shaped body of said locking sleeve such that said flanged shaft portion cannot rotate along said threaded shaft.

8. (Original) The method of claim 7, wherein bolting said flanged shaft portion to said locking sleeve comprises bolting said flanged shaft portion to a disc-shaped body of said locking sleeve using at least one 12-point flange screws such that said flanged shaft portion cannot rotate along said threaded shaft.

9. (Original) The method of claim 7, wherein bolting said flanged shaft portion to said locking sleeve comprises:

inserting at least one 12-point flange screw through a locking sleeve hole on said locking sleeve and through a flanged shaft portion hole on said flanged shaft portion; and

tightening said at least one 12-point flange screw to about 25 foot-pounds of torque.

10. (Original) The method of claim 3, wherein the plurality of fan blades is located closer to the radiator in said first fan position than the plurality of fan blades in said second fan penetration.

11. (Original) The method of claim 3, wherein the plurality of fan blades are located farther from the radiator in said first fan position than the plurality of fan blades in said second fan penetration.

12. (Original) The method of claim 3, wherein said first direction is counterclockwise.

13. (Original) The method of claim 3, wherein said first direction is clockwise.

14. (Currently Amended) A fan penetration fixture for use in optimizing fan blade positioning within an engine cooling system of a vehicle for a desired cooling performance characteristic, the fan penetration fixture comprising:

a threaded shaft portion having a disc-shaped portion and a threaded shaft;

a locking sleeve threaded onto said threaded shaft; and

a flanged shaft portion threaded onto said threaded shaft and coupled to said locking sleeve, wherein said flanged shaft portion has a plurality of first flanged shaft portion holes for coupling said flanged shaft portion to said locking sleeve and a plurality of second flanged shaft portion holes for coupling said flanged shaft portion to a hub portion of a fan assembly.

15. (Cancelled).

16. (Currently Amended) The fan penetration fixture of claim ~~15~~ 14, wherein said locking sleeve has an outer disk having a plurality of locking sleeve holes.

17. (Original) The fan penetration fixture of claim 16 further comprising a plurality of head bolts, one of said head bolts coupled within one of said plurality of first flanged shaft portion holes and a respective one of said locking sleeve holes to secure said flanged shaft portion to said locking sleeve.

18. (Original) The fan penetration fixture of claim 17, wherein the coupling of said flanged shaft portion to said locking sleeve prevents the rotational movement of said flanged shaft portion along the length of said threaded shaft.

19. (Original) The fan penetration fixture of claim 17, wherein said plurality of head bolt comprises a plurality of 12-point flange screws.

20. (Currently Amended) The fan penetration fixture of claim ~~15~~ 14 further comprising a plurality of Allen head bolts, one of plurality of Allen head bolts coupled within each respective one of said plurality of second flanged shaft portion holes to secure said flanged shaft portion to said hub portion of said fan assembly.